

Educational Leadership for ICT-based Curriculum Innovation

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Abstract: Education, as central to the knowledge society of the 21st century, must produce people who are able to create and gain advantages from the new knowledge. However, the question is what kind of schooling would be best to prepare students for life in the knowledge society. To address the demand of knowledge challenges, policies on information and communication technology (ICT) in education have been produced in many countries, in which educational innovations using ICT have been increasingly embedded within a broader framework of educational change. Curriculum innovation has been regarded as an essential strategy for educational reform throughout the era of educational change, and practices of ICT-based curriculum innovation have been advocated in recent years. This paper reports six primary schools in Hong Kong participated in a curriculum innovation endeavored to promote and engage students in knowledge building through online learning communities. Essential contextual factors associated with the curriculum innovation were emerged from the analysis of data collected from principals, teachers, and students. This paper also discusses educational leadership issues in connection to the curriculum innovation.

Introduction

The use of information and communication technology (ICT) has made pervasive impacts both on the society and education. The Second Information Technology in Education Study Module 2 (SITES-M2), an international comparative study to investigate innovative pedagogical practices using technology across 28 countries or regions, indicates the emergence of significant curriculum innovations using ICT (Kozma, 2003). In addition to the growth of ICT use, the emergence of the knowledge society has also brought about a much greater emphasis on economy and education. As Drucker (1999) pointed out, “the most valuable asset of a 21st century institution, whether business or non-business, will be its knowledge workers and their productivity” (p.79). In response to such challenges, a number of policies on ICT in education have been produced in many countries (Pelgrum & Anderson, 1999). Such policies reveal that educational innovations in ICT have been increasingly embedded within a broader framework of educational change that aimed to develop student abilities to communicate, collaborate and learn with peers, as well as for self-learning, problem-solving, and critical thinking, which have not been emphasized in previous school curricula (Law et al., 2000; Yuen, Law & Wong, 2003). Curriculum innovation using ICT has been regarded as an essential strategy for educational reform throughout the era of technology and educational change over the past decade.

The Hong Kong Special Administrative Region Government’s five-year strategy on ICT implementation in schools launched in late 1998 (EMB, 1998) shares the aforementioned broader educational framework in much the same as other countries. With this launch, Hong Kong entered a very exciting period of rapid expansion and development in this area. The challenge involved was not simply a case of technological adoption, but rather a process of innovation, which required both financial and training support for schools, as well as cooperation between teachers and school leadership to ensure success (Law et al., 2000). Experiences from the SITES-M2 case studies as well as the education research literature on curriculum innovation and change show that leadership is of paramount importance in the implementation of change. Schools need help to review and align their visions and goals and to establish school-based strategies for implementation. In this regard, government or system level support for the sharing of change strategies and goals, organization, and management as well as ways to assess the impact of various strategies are regarded as very important. Curriculum planning and development experiences in conjunction with the use of ICT to bring about new learning goals and activities are also important (Yuen, Fox & Law, 2004).

If ICT is to be integrated into the school curriculum, the meaning of educational leadership and the role of the school principals within a technological change must be redefined (Bennett, 1996). Kearsley and Lynch (1992) believe that a cultural view of leadership is most useful in the discussion of ICT integration in education, in which leaders are expected to shape the culture of individual school by creating new visions that organizational members can believe and act upon. Then, what considerations must be made to effectively plan and implement

ICT integration in schools? Bennett (1996) argues that both cultural as well as physical environment within a school are important factors to be considered in ICT integration. Flanagan and Jacobsen (2003) provide a contextual framework with which school principals can undertake new responsibilities and roles as technology leader, including leader of learning, leader of student entitlement, leader of capacity building, leader of community, and leader of resource management. In a study of 10 ICT-enriched schools in Canada, New Zealand, and United States, Yee (2000) defined eight types of ICT leadership, namely, equitable providing, learning-focused envisioning, adventurous learning, patient teaching, protective enabling, constant monitoring, entrepreneurial networking, and careful challenging. The principals in the study demonstrated these eight roles, but in varying degrees. Based upon the theory of transformational leadership, this study managed to describe some characteristics of ICT leadership in the sample schools.

In the analysis of the SITES-M2 cases, an explanatory model for sustainability was proposed including two sets of conditions underlying sustainable innovative pedagogical practices using ICT, namely, essential and contributing conditions (Kozma, 2003). Essential conditions were necessary, but not sufficient, conditions for innovations to be sustainable, which included innovation champions, teacher support, and administrative support; whereas contributing conditions were conditions that facilitated the sustainability of innovations, which included supportive plan and policies, funding, support from outside school, and support within school. Based on a mixed qualitative-quantitative 3-step analysis of the SITES-M2 cases, the Hong Kong research team identified five major contextual factors for pedagogical innovations, namely, school background, principal leadership, school strategies, government and community support, and school ICT infrastructure. It has also been shown that these contextual factors influenced changes at the school level within which the classroom innovations took place (Yuen, Law & Chow, 2004).

Education, as central to a knowledge society, must produce people who are able to create and gain advantages from the new knowledge (Bereiter, 2002). Because of the changing nature of the knowledge age, students need to develop ways of dealing with complex issues and problems that require different kinds of knowledge that they have ever learned. Thus, the idea of a school that can learn has become increasingly prominent in the last decade. Senge et al. (2000) argue that “in any effort to foster schools that learn, changes will make a difference only if they take place at all three levels” (p. 11), namely, the classroom, the school, and the community; and five disciplines of organizational learning were also identified: personal mastery, shared vision, mental models, team learning, and systems thinking.

Realizing the impact of the new learning culture and learning orientation in schools, six primary schools in Hong Kong in collaboration with a local tertiary institution engaged in a curriculum innovation project which focused on building learning communities and constructing knowledge using ICT. Based on the framework of “learning organization” (Senge et al., 2000), this article presents experience and reflection upon a number of issues that emerged when schools and individual members of staff in response to external challenges for curriculum innovation associated with the use of ICT. This article begins with a brief description of the curriculum innovation project in connection to building learning communities through a computer-mediated communications (CMC) platform called Knowledge Forum (KF). Then, it reports the results of the analysis of data collected from principals, teachers, and students during the implementation of the project to explore how such curriculum innovation initiated a change of learning and culture in the schools. Leadership issues arising from the curriculum innovation are also discussed.

Curriculum Innovation Using Knowledge Forum

The idea of learning communities has been introduced more than two decades (Caverly & MacDonald, 2002). Given the advancement of ICT, a number of ways have been proposed to bring students and teachers together in learning communities, such as knowledge-society, telementoring, connected-classrooms, teacher-community and shared-passions, in which students are involved in a collective effort of understanding with an emphasis on diversity of expertise, shared objective, learning how to learn and sharing what is learned (Bielaczyc & Collins, 1999).

Knowledge Forum, the second generation product of the Computer-Supported Intentional Learning Environment (CSILE) project (Scardamalia & Bereiter, 1991), is a CMC platform designed to facilitate the

inquiry process, knowledge construction and enhance effective collaboration. The CSCIL (or KF) project has been regarded as “a successful example” of virtual learning community in the field of instructional technology innovations (Shavinina & Ponomarev, 2003; p. 405). KF allows users to create knowledge communities. KF adopts the approach of collaborative inquiry and continuous improvement for knowledge construction (Scardamalia & Bereiter, 1996). The basic idea of the KF environment is that knowledge is brought into the environment and something is done collectively to it that enhances its value. The goal is to maximize the value added to knowledge - either the public knowledge represented in the community database or the private knowledge and skill of the individual learner.

Knowledge building as carried on in schools, it is likely to be viewed and evaluated as a learning activity (Bereiter, 2002). However, knowledge building is different from conventional learning that focuses on individual assignments and various other individual displays of knowledge ability. Learning is an internal process that results in changes of belief, attitude, or skills, whereas knowledge building results in the creation or modification of knowledge and aims to advance the frontier of knowledge as students perceived. Learning is “the process through which the rapidly growing cultural capital of a society is distributed” and knowledge building is “the deliberate effort to increase the cultural capital of society” (Scardamalia & Bereiter, 2002).

To implement knowledge building in classrooms using KF, it is suggested that the following pedagogical shifts should be considered in contrast to traditional instruction: (1) to emphasize problems of understanding and explanation; (2) to deal with knowledge; (3) to emphasize the contribution to the progress of knowledge building discourse; (4) to improve upon student conjecture, (5) to sustain knowledge creation; (6) communication that is implicitly directed toward everyone; and (7) to provide opportunity for reflection (Scardamalia & Bereiter, 1999). Nonetheless, such pedagogy deserves further investigation and empirical support.

Method

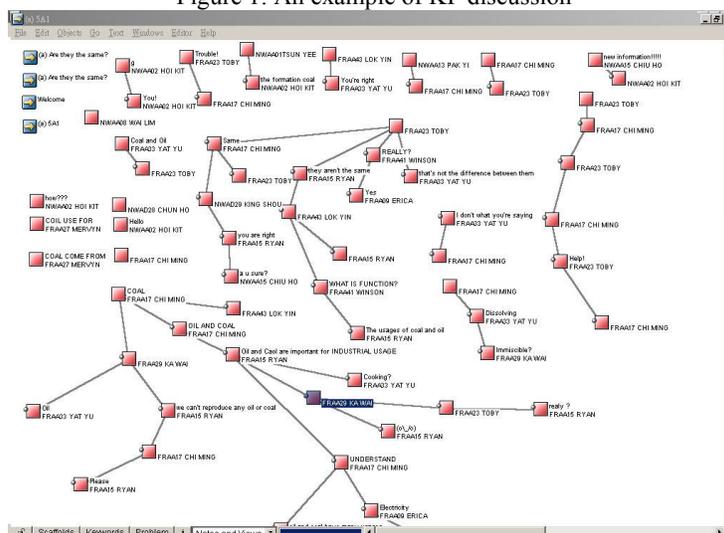
This study was a case study focused on exploring the issues of leading curriculum innovation in six primary schools based on the different ways that principals, teachers, and students experienced the process of the project. In order to gain an in-depth understanding of the situation and meaning those involved (Smith, 1978; Yin, 1998), the current case study particularly aims to depict qualitatively different ways and variations of how principals, teachers, and students perceived various phenomena during the implementation of curriculum innovation in schools. 793 students (Grade 5) from six Catholic primary schools in Hong Kong including three boys’ schools and three co-educational schools were engaged in the project. The following table (Table 1) is a description of the number of students from each school labeled as School A to F.

Table 1: Number of students

School	Number of students	Female	Male
A	150	49	101
B	216	0	216
C	105	12	93
D	229	0	229
E	37	0	37
F	56	20	36
Total	793	81	712

First of all, a conference for all participating teachers (24 teachers) and students was held to launch the project. Briefing for the project and forming of inter-school project groups (each group consists of 8 students from 2 different schools) were arranged in the conference. We conducted training workshops for teachers as well as students to facilitate project-based learning and knowledge construction. With the support of web-based resources and KF databases developed by the project team, 793 students from six primary schools were engaged in inter-school science project works and online threaded discussion during the second semester in 2002. The discussion was conducted in English since these schools used English as the medium of instruction. The following figure is an example of student threaded discussion on the KF (Figure 1).

Figure 1: An example of KF discussion



Knowledge Forum Client version 3.4 was used throughout the project. The central activity of the KF community is students' contributions to the communal knowledge bases, and contributions can take the following forms: (a) individual note, in which students state problems, advance initial theories or improve theories; (b) build-on, which allows students to connect new notes to existing notes; and (c) rise-above, which allows students to summarize and synthesize a group of related notes. In addition, customizable scaffolds to support discourse, such as "My theory", "I need to understand", "New information", and "A better theory" are also available to help students in the process of knowledge building.

Using the KF, students from different schools engaged in online discussion and knowledge building, and thus collaborative learning communities were formed. Students from different schools participated in three discussion topics: the formation of oil and coal (School A and C), why there are twins (School B and D), and the development of a well-planned city (School E and F). We observed that School E and F were comparatively the most active schools in the online discussion in terms of number of notes posed by students (Table 2).

Table 2: Student participation on KF

School	Total number of notes posed	Number of notes per student
A	536	3.6
B	960	4.4
C	717	6.8
D	1295	5.7
E	648	17.5
F	767	13.7
Total	4923	6.2

Data collection included principal, teacher, and student interviews. By the completion of the project, six principals (labeled as Principal A to F corresponding to School A to F) were invited for individual interviews, and eleven teachers as well as 24 students from six schools were participated in small group interviews. During the interview, principals were asked about their experience in leading the innovation project in particular issues at school level. Teachers were asked to reflect on their roles and responsibilities in conducting the project. Students were asked to report on their learning experience during the processes of their engagement. These semi-structured interviews were collected and analyzed using grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1990) to conceptualize themes of variations in their experience, understanding and reflection of their participation in the processes of the curriculum innovation.

Results

Four major themes were found from the iterative analysis of teachers' and principals' interview, namely, school background, principal leadership, school strategies, and perceived value of the innovation. Data analysis resulted in the emergence of categories for these themes.

School Background

It was found that the SITES-M2 cases with school background in strong educational vision and experience in innovation and ICT use appeared to be more related to the innovations (Yuen, Law & Chow, 2004). School background is fundamental to the implementation of innovations. The implementation of an innovation is affected by various elements associated with the school background. The results indicate two distinct elements of school backgrounds in the project implementation. Collaborative culture and strong parent support were apparent across the schools. The collaborative culture can be illustrated by the followings.

“Teachers’ collaboration and quality is important in this project. Our school is quite successful and has advantage (in maintaining teachers’ quality) since we are a private school” (Extract from interview of Principal E). “We have a tight cooperation (between schools for this project) and this is quite successful as well, I think. In the past, different schools are working by themselves” (Extract from interview of Principal A).

Apart from the government support, the community often represented by stakeholders such as parents and alumni may also contribute to the formulation of the innovation as well as to the provision of enriched technology infrastructure and support. These schools had a strong emphasis on parent support: “if parents know more about how to use information technology to communicate, their children will also be more positive in using information technology. Therefore, we emphasize on parent education a lot” (Extract from interview of Principal B).

Principals realized that parents’ support was extremely important and they put a lot effort to communicate and clarify the curriculum innovation to the parents. This can be demonstrated by the following interviews.

“Yes, we should give a clear message about our project’s objective to our parents and show that assessing the web is essential in this project. As they thought that their children could use the schools’ computers and finished everything, they did not let their children use computers at home. So of the students told me that their computers were locked or could not access to the Internet” (Extract from interview of Principal D).

“At first, we encounter some difficulties in parents’ support. But towards the end, maybe they has found out that (this project) is meaningful. We did not need to lend the facilities to our students. This means that maybe the parents had already brought the computers (to support their children in doing KF). We can see that the parents are willing to spend if they can foresee the outcome can help their children. If they find out that this project is worth doing, they will be very co-operative” (Extract from interview of Principal A).

Principal Leadership

“A leader can do many things to facilitate the successful implementation of change” (Yukl, 2002; p.300). In the process of innovation, principal leadership at the school level involves the provision and management of different factors associated with values, strategies, and planning. In the SITES-M2 case analysis, “visionary leader” was associated with the innovative practices (Yuen, Law & Chow, 2004). The idea of “visionary leader” was not clear in the findings of the current study, however, it was found that principals of the six schools were in general supportive with clear understanding of the innovation and leadership roles of principals, as Principal E said, “As a member of the steering committee, I am a leader of the innovation project. In other word, the guidance provided by us is similar to a building’s structure”.

Principals were very supportive and involved in the innovation. “In dealing with different cases, I think a school principal will the teachers what I know. If the teachers need to communicate with parents, we will then do it (arrange for meetings or teacher-parent communication)” (Extract from interview of Principal C). Some

principals even made special arrangement for the curriculum innovation. “For example, if I need a double period for students to do KF, we will ask the teachers concerned to make the arrangement” (Extract from interview of Principal C).

Principals also demonstrated clear understanding of the innovation project, such as they realized “student-centered” as the crucial element: “I think teachers do not need to help the students to find out the answers but have to guide them. I think this process is essential at the beginning. But when everything is stable, teachers’ participation should be as little as possible. I think this project should be student-centered” (Extract from interview of Principal A).

School Strategies

Obviously, the school strategies are very much influenced by the principal leadership as this determines the change priorities and resource deployment. School strategies are clearly essential to the leading of the innovation. The SITES-M2 cases with strategies in establishing new team for implementation or bottom-up initiation were associated with the Innovations (Yuen, Law & Chow, 2004). Nevertheless, the results of the current study demonstrated that the principals took different top-down approaches to the implementation of the innovation in terms of school strategies.

Principal A took a top-down and “systematic” approach for the project: “From my point of view, the principal’s role is helping the teachers feel comfortable before doing this project. Making sure that they will not be doing a lot of in this project. Or in other word, their work is worthwhile. This can be done by providing teachers a vision and technical back-up. The school will try its best to support them, reorganizing the school timetable, for example”.

However, Principal F delegated the leading responsibilities of the innovation project to some senior teachers: “Mr. X is responsible for this project assisted by Mr. Y. Mr. X is responsible for organizing and making contact with the project coordinator. He also needs to follow students’ report, whereas Mr. Y is helping him then. Yes, they will cooperate and work together”.

With the belief that both principal and teachers should have a role to play in the innovation project, Principal C presented some ways of cooperation: “We work and discuss together. Then we finish the work cooperatively. There is a spirit among us. We actually do everything like this. There is a part for the principal and a part for teachers. Then we will finish our part cordially”.

Perceived Value Of The Innovation

The results reflected that the perceived impact of the innovation was an important factor contributing to the implementation of curriculum innovation. First, principals found that positive changes in teacher-student relationship. Some teachers realized their roles have been changed from knowledge provider to providing guidance and directions for students in the discussion, as illustrated by the following teachers’ interview: “I’ve done more things. For instance, give them guidelines. So they’ve got directions for discussion. Before, the teacher’s role was that teachers asked questions. But now when learning science through KF, students actively learn to ask questions whilst teachers need give them valuable help especially finding relevant web contents for them” (Extract from teachers’ interview).

“In fact, our role is being changed. We don’t dominate learning. Knowledge sources are no longer from us or textbook, but we’ve played a very important role” (Extract from teachers’ interview). Such change provided a stepping-stone for advancing students’ learning.

Principals found the innovation provided opportunities for students to learn beyond classrooms: “In the past, (our students) would only write with pen and paper and wouldn’t share to others. But now, everyone can see what they are writing. It gives more pressure to them. Besides, this project is a bit different from the others, it makes students’ learning beyond classrooms” (Extract from interview of Principal B).

Both teachers and students realized that the innovation project could advance student learning and provide self-learning opportunities. Students found that teacher is not the only source of knowledge (Yuen, 2003). “Now, I realize at the beginning, we needed to guide our kids step by step. But now it is unnecessary. Once they know how to carry out ongoing discussion on KF, they can develop further by themselves. Currently, I just read their notes to see their progress without any interruption” (Extract from teachers’ interview).

Finally, the innovation project also provided opportunities for parents’ change: “I think parents’ role is very important. Since a mother can look after her child in many ways, remind him, for example. If parents care this project more, it is actually helping them to communicate with their children better” (Extract from interview of Principal F).

Discussion

How does the ICT initiate a change of the learning culture in schools? This study has attempted to explore the contextual factors in leading ICT-based curriculum change within six primary schools. Follow the framework of learning organization (Senge et al., 2000), two levels (i.e. classroom and school) of change were observed, which are comparable to the previous studies (Kozma, 2003; Yuen, Law & Chow, 2004). The following section aims to discuss leadership issues in connection to the aforementioned observations.

Change Agents

Facing the external challenges of educational reform, many schools have considered a rational planning approach to change initiative, which comprises elements such as need analysis, research and development, strategy formation, resource support, implementation and dissemination, and evaluation (Lueddeke, 1999). Such systematic approach is certainly helpful to decision-makers to identify actual concerns and to engage teachers and stakeholders in the change practices. However, change in schools is complex and chaotic (Fullan, 1999), it “will always fail until we find some way of developing infrastructures and processes that engage teachers in developing new understanding, deep meaning about new approach of teaching and learning” (Fullan, 2001; p.37). Apart from institutional change agents, there are a number of crucial factors that drive school change and help to bridge external challenges and internal practices. However, in response to the challenges of ICT in education, as Webb (2003) pointed out, we need to address questions such as how ICT challenges organizational structures; reshapes assumption about leading; affects resource allocation; and fosters new forms of leadership development.

The results of this study demonstrated that principals as core change agents in schools were committed to making continuous improvement and development in this regard. In the discussion on the innovative development of technology-augmented pedagogical practices in education, Taylor (1998) argued that the approach based on isolated enthusiasts is inadequate as the institutional response though it leads to valuable outcomes in some cases. The dependence of external agents in school innovation and change has become prevalent in recent years (Goodman, 1994; Fullan, 2001). What is the role of external agents in the innovation projects? The most common role that external agents assume is that of a “merchant”. This approach to change involves identifying particular information that schools needed and then asking a consultant to provide the necessary services. Another role that external agents assume is that of a “medical examiner”. This approach of change is often seen as valuable when the performance of a particular school has declined and consultants are brought into the school to determine what is wrong (Goodman, 1994). Similarly, Fullan (2001) provides a comprehensive discussion on the role of consultant using labels of “inside-out” and “outside-in”.

The innovation project described in this study is neither a model of “merchant” nor “medical examiner”. Teachers, principals, parents, and students were informed-participants in the project implementation. Sharing sessions had been held for teachers involved in various stages of the projects to discuss their concerns and impact of the projects in relation to curriculum and classroom practices. Both teachers and principals were actively engaged in the innovative practice in order to keep a balance of internal practices and external connections.

Many school innovations have “champions” – individuals who pioneer, advocate, defend, and advance the innovation in their schools (Kozma, 2003). Two major sources associated with the initiation of the innovative classrooms were identified from the analysis of the SITES-M2 cases. The first source was internal, which may be identified with particular initiators such as a teacher enthusiast who initiated the innovation or a principal as the initiator; but may sometimes be just relegated to the fact that the school had a reputation for innovation. The second source was external, sometimes identifying the initiation as associated with a community collaborator, but also sometimes relegated as a result of an attempt to align with the government policy or as a consequence of having extra government resources. It was found that innovations initiated by specific teacher enthusiasts generally had more emergent features in terms of the roles played by the teachers and students (Yuen, Fox & Law, 2004). In the current case study, principal-as-champion is clearly demonstrated in the six primary schools in Hong Kong.

Change and innovation is always to be initiated from a variety of different sources (Fullan, 2001). In general, change in schools is driven by a number of forces, including the demands of school management, government policy initiatives and attempts by individual teachers to meet the changing needs of students (Hannan, English & Silver, 1999). The current project is an example of collective effort between institutional agents (including teachers, principals, and student) and external agents including tertiary institutions as well as parents. Nevertheless, the principal influence is obvious in the project initiation and implementation.

Support And Curriculum Innovation

School support is important to change and innovation in schools. First of all, school administrative support concerns with the way school administrators can facilitate change through resources, structures, and staffing. In this project, some school principals did make changes for time-tabling and re-deployment of teaching loads to foster curriculum change in their schools. Secondly, in the planning of the project, a flexible vision was kept in mind in order to accommodate possible opportunities for the development of different schools. Thirdly, people need to see that their hard work is leading toward progress, thus visible actions are important change process strategy. The implementation of this project had a clear schedule and the processes were transparent to all participants. Finally, staff development, a set of training workshops to build new capacities and understanding within teachers, was extremely important to change processes. Besides professional development for teachers, the project also provided training for student participants.

Apart from the institutional support, understanding institutional culture in order to develop and match strategies for change are fundamental to an effective change process. Thus, change agents need to attempt to become “cultural outsiders” (Kezar and Ecel, 2002), that is, to keep an outside perspective on the schools. To achieve such outside perspective, strategies included: (a) working with a network of institutions, (b) using outside resources, (c) bringing in new idea of curriculum leadership among schools, and (d) participating in exchange and sharing workshops or seminars to broaden the horizons of teachers and students. In addition to principal as well as parent support, these strategies were clearly reflected in the current innovation project.

Professional Development And Curriculum Innovation

Schools are weak at knowledge sharing within and across schools though the notion of school as learning organization has become increasingly prominent during the last decade (Fullan, 1993; Senge et al., 2000). In contrast to this sharing culture in schools, there is a new learning culture underlying the project, in which learning is driven by vision (Senge et al., 2000) and students are involved in a collective effort of understanding with an emphasis on diversity of knowledge, learning how to learn and sharing what is learned in building learning communities (Bielaczyc & Collins, 1999).

The implementation of learning communities in classrooms posed challenges to the conventional pedagogy, in which conventional pedagogy takes the assumptions that learning is viewed as an individual pursuit than group (Krechevsky & Stork, 2000), learning is a “fragmentary act of receiving and giving compartmentalized bits knowledge” (Howard & England-Kennedy, 2001; p. 78), and instructional activities focus on the transmission of the textbook’s or teacher’s knowledge to students without any encouragement of knowledge sharing

(Bielaczyc & Collins, 1999). During the implementation of the project, teachers experienced changes in pedagogical practices, in particular their roles in teaching and learning.

To foster such change, teacher development is extremely significant as “knowledge use and teacher development is inextricably linked to curriculum development and change, whether it be through the development of curriculum materials and instructional practices or through beliefs and understanding about curriculum” (Hall, 1997). The current project aimed to bring students into learning communities as well as to bring teachers into a professional community with new learning culture. However, professional development opportunities for principals are equally important and needs to be addressed in the future.

Conclusion

The implementation of curriculum innovations is “a struggle for the power to determine classroom practice” (Common, 1983; p. 203). In leading curriculum innovations in schools, the alignment between external demands and internal practices is important. This article presents experiences arising from a curriculum innovation project using ICT in six primary schools in Hong Kong. This project provided opportunity for teachers and students to integrate curriculum and ICT on one hand, and on the other hand, it brought about ways of developing processes that engage teachers and students in developing new understanding, deep meaning about new learning culture. Principals endeavored to create conditions favorable to the innovation. Parents were engaged and showed their support. Resources and strategies were deployed to promote learning at the classroom as well as school level. Though this learning culture is not currently emphasized in Hong Kong schools, the current curriculum innovation aimed to redefine (Sternberg, Pretz & Kaufman, 2003) learning in schools. We believe this idea of innovation has provided a breakthrough to existing classroom practices in the six primary schools. However, the sustainability of such innovation and learning culture is a challenge to many schools and deserves further attention in research and development.

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